Claims

Having thus described the invention, what is claimed as new and desired to be secured by Letters Patent is as follows:

1. A ballast testing and monitoring apparatus for quick connection to a fluorescent lamp assembly having a lamp system ballast and at least one fluorescent lamp, said apparatus comprising:

a casing having a plurality of light sources spaced apart along a top surface thereof;

a test circuit positioned in said casing;

a memory electrically connected to said test circuit;

means for releasably electrically connecting said test circuit to a primary power source;

means for releasably electrically connecting said test circuit to said lamp assembly ballast and to said at least one lamp;

means in said test circuit for obtaining startup voltage data from said lamp assembly ballast for evaluation indicative of operability of said lamp assembly ballast; and

means in said test circuit for storing a ballast fault record in said memory if said evaluated startup voltage data indicates inoperability of said lamp assembly ballast.

2. The ballast testing and monitoring apparatus as in claim 1 further comprising:

means in said test circuit for obtaining operation voltage data from said lamp assembly ballast at a time after obtaining said startup voltage data for evaluation indicative of operability of said lamp assembly ballast; and

means in said test circuit for storing another ballast fault record in said memory if said evaluated operation voltage data indicates inoperability of said lamp system ballast.

3. The ballast testing and monitoring apparatus as in claim 1 wherein:

said casing defines a plurality of apertures; and

said means for releasably electrically connecting said test circuit to said lampassembly ballast includes a wire clip assembly situated in said casing, said wire clip assembly including:

a first set of wire receiving clips positioned in accordance with respective casing apertures, each of said first set of wire receiving clips being configured to releasably receive a wire from said lamp system ballast; and

a second set of wire receiving clips spaced from said first set of wire receiving clips and positioned in accordance with said respective casing apertures, each of said second set of wire receiving clips configured to releasably receive a wire from said at least one lamp.

4. The ballast testing and monitoring apparatus as in claim 1 wherein said means for releasably electrically connecting said test circuit to the lamp assembly ballast includes a plug and socket connector.

5. The ballast testing and monitoring apparatus as in claim 1 further comprising a secondary power source electrically connected to said test circuit, said

secondary power source energizing said test circuit when said primary power source is disabled.

6. The ballast testing and monitoring apparatus as in claim 5 wherein said secondary power source is a capacitor, said capacitor being charged when said primary power source is enabled.

7. The ballast testing and monitoring apparatus as in claim 5 further comprising:

means in said test circuit for obtaining lamp voltage test data from said at least one lamp when said secondary power source is enabled for evaluation indicative of operability of said at least one lamp; and

means in said test circuit for storing a lamp fault record in said memory if said evaluated lamp voltage test data indicates inoperability of said at least one lamp.

8. The ballast testing and monitoring apparatus as in claim 7 further comprising:

means in said test circuit for energizing one of said plurality of light source if said ballast fault record is stored in said memory; and

means in said test circuit for energizing another of said plurality of light sources if said lamp fault record is stored in said memory.

9. The ballast testing and monitoring apparatus as in claim 1 further comprising means in said test circuit for energizing one of said plurality of light sources if said ballast fault record is stored in said memory.

10. A method for testing and monitoring the operability of a fluorescent lamp assembly having a lamp assembly ballast and at least one fluorescent lamp, said method comprising:

providing a logic circuit electrically connected to said lamp assembly ballast, to said at least one lamp, and to said primary power source;

providing a memory electrically connected to said circuit;

providing data to said circuit for evaluation indicative of operability of said lamp assembly ballast when said primary power source is enabled;

storing a ballast fault record in said memory if the evaluated ballast data indicates inoperability of said lamp assembly ballast;

providing a secondary power source electrically connected to said circuit, said secondary power source providing power to said circuit when said primary power source is disabled;

providing data to said circuit for evaluation indicative of operability of said at least one fluorescent lamp when said secondary power source is enabled; and

storing a lamp fault record in said memory if the evaluated fluorescent lamp data indicates inoperability of said at least one fluorescent lamp.

11. The method as in claim 10 further comprising:

providing a plurality of LED's electrically connected to said logic circuit;

upon request for a diagnostic test, energizing one of said plurality of LED's if said ballast fault record is stored in said memory;

upon request for said diagnostic test, energizing another of said plurality of LED's if said lamp fault record is stored in said memory.

12. The method as in claim 10 wherein said step of providing data indicative of operability of said lamp assembly ballast includes:

measuring a test voltage passing through said lamp assembly ballast at a first predetermined time for evaluation of an operability of said lamp assembly ballast at startup;

measuring another test voltage passing through said lamp assembly ballast at a second predetermined time for evaluation of an operability of said lamp assembly ballast after startup;

providing said test voltage and said another test voltage to said circuit for comparison with predetermined strike and operation voltages, respectively;

storing said ballast fault record in said memory if said test voltage is less than said predetermined strike voltage; and

storing said ballast fault record in said memory if said another test voltage is greater than said predetermined operation voltage.

13. The method as in claim 10 further comprising enabling said secondary power source when said primary power source is disabled.

14. The method as in claim 10 wherein said secondary power source is a capacitor.

15. The method as in claim 14 further comprising charging said capacitor when said primary power source is enabled.

16. The method as in claim 10 wherein said secondary power source is a battery.

17. The method as in claim 10 wherein said step of providing data to said circuit indicative of operability of said at least one fluorescent lamp includes:

passing a voltage across a filament of said at least one fluorescent lamp;

measuring said passed voltage;

providing said passed voltage to said test circuit for evaluation indicative of operability of said at least one fluorescent lamp; and

storing said lamp fault record in said memory if said evaluated passed voltage is indicative of inoperability of said at least one fluorescent lamp.

18. A ballast testing and monitoring apparatus for quick connection to a fluorescent lamp assembly having a lamp system ballast and at least one fluorescent lamp, said apparatus comprising:

a casing;

a test circuit positioned in said casing;

a memory electrically connected to said test circuit;

means for releasably electrically connecting said test circuit to a primary power source;

a wire clip assembly situated in said casing and having a plurality of wire receiving clips for releasably receiving wires from said lamp assembly ballast and said at least one lamp, said wire receiving clips electrically connecting said wires;

a plurality of wire release buttons coupled to respective wire receiving clips, each wire release button including a color indicia corresponding to a color of a respective wire; and

means in said test circuit for obtaining voltage data from said lamp assembly ballast for evaluation indicative of operability of said lamp assembly ballast.

19. The ballast testing and monitoring apparatus as in claim 18 further comprising a secondary power source electrically connected to said test circuit, said secondary power source energizing said test circuit when said primary power source is disabled.

20. The ballast testing and monitoring apparatus as in claim 19 further comprising:

means in said test circuit for obtaining lamp voltage test data from said at least one lamp when said secondary power source is enabled for evaluation indicative of operability of said at least one lamp; and

means in said test circuit for storing a lamp fault record in said memory if said evaluated lamp voltage test data indicates inoperability of said at least one lamp.